

**We Claim:**

1. A method for identifying compounds that modulate human orexin-2 receptor activity, comprising:
  - 5 a) combining a putative modulator of human orexin-2 receptor activity with human orexin-2 receptors contained within membranes of cells non-recombinantly possessing the human orexin-2 receptor; and
  - b) measuring an effect of the modulator on activity of the human orexin-2 receptor.
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2. The method of claim 1, wherein the human orexin-2 receptors are contained within membranes of intact cells.
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3. The method of claim 1, wherein the human orexin-2 receptors are contained within membrane structures selected from the group consisting of isolated membrane fragments, unilamellar vesicles and multilamellar vesicles.
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4. The method of claim 1, wherein the cells possessing the human orexin-2 receptor are PFSK-1 cells.
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5. The method of claim 1, wherein the effect measured in step (b) is binding of the putative modulator to the orexin-2 receptors.
6. The method of claim 1, wherein the effect measured in step (b) is competition of the putative modulator with a known ligand of the human orexin-2 receptor for binding to the receptors.
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7. The method of claim 2, wherein the effect measured in step (b) is modulation of a human orexin-2 receptor intracellular second messenger.

8. The method of claim 7, wherein the intracellular second messenger is selected from a group consisting of cAMP, Ca<sup>++</sup>, and a reporter gene product.
- 5      9. The method of claim 8, wherein the cells are transfected with a G $\alpha$ -protein DNA construct.
- 10     10. The method of claim 8, wherein the intracellular second messenger is Ca<sup>++</sup>, detected with a fluorescent Ca<sup>++</sup> indicator.
11. The method of claim 1, adapted to distinguish the putative modulator as an agonist, antagonist or inverse agonist of the orexin-2 receptor.
12. A kit for use in identifying compounds that modulate human orexin-2 receptor activity, comprising a container containing human orexin-2 receptors contained within membranes of cells possessing the human orexin-2 receptor, and instructions for use of the receptors to identify compounds that modulate human orexin-2 receptor activity.
- 20     13. The kit of claim 12, comprising intact cells possessing human orexin-2 receptors.
14. The kit of claim 12, further comprising one or more of:
  - a) a known ligand of orexin-2 receptor;
  - b) reagents for detecting an effect of a putative modulator on orexin-2 receptor activity; and
  - c) one or more buffers or diluents for practicing an assay to identify compounds that modulate human orexin-2 receptor activity.
- 25     15. A compound identified using the method of claim 1, wherein said compound was not previously known to be a modulator of a human orexin-2 receptor.

16. A compound identified using the method of claim 1, wherein the compound is an agonist, antagonist, or inverse agonist of a human orexin-2 receptor or modulates a Ca<sup>++</sup> channel activated by the human orexin-2 receptor.
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17. A pharmaceutical composition comprising the compound of claim 15 and a pharmaceutically acceptable carrier.
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18. A method of treating a patient in need of such treatment for a condition that is mediated by a high amount or activity of a human orexin-2 receptor comprising administration of a pharmaceutical composition of claim 17, of a type that lowers the amount or activity of the orexin-2 receptor.
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19. The method of claim 18, wherein the condition is selected from the group consisting of sleep/wake transition disorders, insomnia, hypermetabolism, hypertension, tachycardia, overweight, obesity, Parkinson's Disease, Tourette's Syndrome, anxiety, delirium and dementia.
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20. A method of treating a patient in need of such treatment for a condition that is mediated by low presence or activity of a human orexin-2 receptor comprising administration of a pharmaceutical composition of claim 15, of a type that increases the amount or activity of the orexin-2 receptor.
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21. The method of claim 20, wherein the condition is selected from the group consisting of narcolepsy, jet lag, hypometabolism, hypotension, bradycardia and lack of appetite.